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10/049,622	02/22/2002	Dairi Kubo	219734US3PCT	7769

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EXAMINER

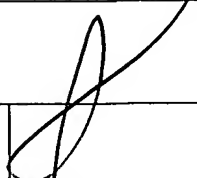
ENGLISH, PETER C

ART UNIT	PAPER NUMBER
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3616

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/049,622	Applicant(s) KUBO ET AL.	
	Examiner Peter C. English	Art Unit 3616	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 6-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Preliminary Amendment

1. The preliminary amendment filed on 22 February 2002 has been entered.

Oath/Declaration

2. The declaration filed on 22 February 2002 is defective because the specification to which the declaration is directed has not been accurately identified. See MPEP § 601.01(a). Specifically, the declaration identifies the international application number as "PCT/JP00/04516" instead of "PCT/JP99/04516". Further, the declaration identifies the title as "GAS GENERATOR FOR ACTUATING VEHICLE OCCUPANT RESTRAINT DEVICE" instead of "GAS GENERATOR FOR ACTUATING VEHICLE PASSENGER CONSTRAINER" (see the title printed on WO 01/14173).

A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

Drawings

3. The drawings are objected to because: in Fig. 3, the legend "Table 1" should be deleted since drawing figures are distinct from tables.
4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The specification is objected to because of the following informalities:
 - At page 1, line 5, "device" should be "devices".
 - At page 1, lines 9, 10 and 11, "fastening" should be "tensioning" or "tightening".
 - On page 2, lines 1-3 are confusing and not understood.
 - At page 2, line 8, "hard solid" is unconventional and confusing.

Art Unit: 3616

At page 3, lines 22-23, "increase of a component count" should be "an increase in the number of components".

At page 4, line 1, "device" should be "devices".

At page 4, line 2, "with a...excellent in" should be "which has a small number of components, has excellent".

At page 4, line 3, "is" should be inserted before "capable".

At page 6, line 4, "component count" should be "the number of components".

At page 6, line 25 through page 7, line 1, "100% in case that the" should be "100%. The".

At page 8, line 13, "fixing" should be "fixed".

At line 2 of the replacement paragraph inserted at page 9, line 16, "incompressible or hard to compress are filled densely" should be "that are incompressible or hard to compress are filled densely in the first hollow body".

At page 9, line 25, "improving the problem for" should be "reducing" or "minimizing".

At page 10, line 8, "embodiment 1" should be "first embodiment".

At page 10, lines 9-10, "embodiment 2" should be "second embodiment".

At page 10, line 10, "is Table 1 showing" should be "shows".

On page 10, lines 16-18 should be deleted in their entirety since they merely repeat lines 8-10 of the same page.

At page 11, line 16, "seal" should be "sealing".

At page 11, line 25, "seal" should be "sealed".

At line 2 of the replacement paragraph inserted at page 12, line 7, "with the one" should be "as the diameter".

At line 4 of the replacement paragraph inserted at page 12, line 7, "with the axle" should be "as the diameter".

At line 4 of the replacement paragraph inserted at page 12, line 7, "circumferences of the" should be "circumference of the main portion of the".

At page 13, line 1, "a" should be inserted before "condition".

At page 13, line 2, "The dimension" should be inserted before "h".

At page 13, line 13, "is written with a word of" should be "constitutes".

Art Unit: 3616

At page 14, line 12, “= empty space volume / full volume X 100” should be “= (empty space volume / full volume) X 100”.

At page 15, line 2, “so as” should be inserted before “not”.

At page 16, line 5, “The dimension” should be inserted before “H”.

At page 16, line 10, “are” should be “is”.

At page 16, line 17, “only” should be “simply”.

At page 16, line 22, “In a case that” should be “The”.

On page 16, line 23 should be replaced with “is regarded as 100% when the gas generants are”.

On page 16, line 24 should be replaced with “compressed to a density equal to a true density thereof.”

On page 16, line 25 should be replaced with “In the gas generator of the present invention the compression degree preferable falls in a”.

At page 17, line 19, “of which particle mean diameter is” should be “with a particle mean diameter of”.

At page 17, line 21, “A gas generants of” should be “Gas generants weighing”.

At page 18, line 2, “cm³” should be inserted after “0.19”.

At page 18, lines 6-7, “this way as Table 1” should be “Example 1”.

At page 18, line 12, “of which particle mean diameter is” should be “with a particle mean diameter of”.

At page 18, line 13, “The gas generants of” should be “Gas generants weighing”.

At page 18, line 17, “0.19” should be “0.41”. Note that 2.3 minus 1.89 equals 0.41.

At page 18, lines 22-23, “this way as Table 1” should be “Example 2”.

At page 19, line 5, “of which particle mean diameter is” should be “with a particle mean diameter of”.

At page 19, line 6, “The gas generants of” should be “Gas generants weighing”.

At page 19, lines 14-15, “this way as Table 1” should be “Example 3”.

At page 19, line 23, “of which particle is” should be “with particles”.

At page 19, lines 24-25, “0.7 mm of an outer diameter” should be “an outer diameter of 0.7 mm”.

Art Unit: 3616

At page 19, line 25, "0.2 mm of an inner diameter" should be "an inner diameter of 0.2 mm".

At page 19, line 25, "1.3 mm of a height" should be "a height of 1.3 mm".

At page 20, line 1, "The gas generants of" should be "Gas generants weighing".

At page 20, lines 9-10, "this way as Table 1" should be "Example 4".

At page 20, line 14, "spacer, and an example of the gas generator where" should be "spacer is not included, and".

At page 20, line 18, "of which particle mean diameter is" should be "with a particle mean diameter of".

At page 20, line 20, "The gas generants of" should be "Gas generants weighing".

At page 21, lines 3-4, "this way as Table 1" should be "Comparative Example 1".

At page 21, line 5, "is" should be deleted.

At page 21, line 9, "Table 1, ignition delay period in Example" should be "FIG. 3, the ignition delay periods in Examples".

At page 21, line 12, "Examples" should be "Examples 1-4".

Appropriate correction is required.

Claim Objections

6. Claims 6-12 are objected to because of the following informalities:

In claim 6, at line 9, "partitioned" should be "defined".

In claim 7, at line 3, "compression" should be "compressed".

In claim 12, at lines 2-3, "generants, being incompressible or hard to compress, are filled densely and" should be "generants are incompressible or hard to compress, and". Note that the generants are said to be "filled densely" in claim 6, at line 4.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. Claims 6-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 3616

In claim 6, at line 3 and lines 5-6, the recitation “with a bottom and sides” does not accurately describe the hollow bodies 2, 4a. The planar portion of the body 2 or 4a is not necessarily a “bottom” (i.e., lowermost) portion. Further, the cylindrical portion of the body 2 or 4a does not have plural “sides”. The examiner suggests: at line 3 and at lines 5-6, change “a bottom and sides” to “an end and a side wall”. If the examiner’s suggestion is adopted, the specification should be amended to provide proper proper antecedent basis for the terms “end” and “side wall”. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o).

In claim 6, at lines 7-8, the recitation “and fixing the first hollow body” is indefinite because it is unclear what the first hollow body is fixed to. The examiner suggests: at line 8, change “fixing” to “fixed to”.

In claims 8 and 9, at line 3, the terms “outer surfaces of the sides” and “inner surfaces of the sides” are indefinite because the cylindrical hollow bodies do not have plural “sides” with plural “surfaces”. Further, it is unclear what the relationship is between the “inner surface” and “outer surface” of claim 6 (lines 9-10) and the “inner surfaces” and “outer surfaces” of claims 8 and 9. The examiner suggests: in claims 8 and 9, at line 3, change “outer surfaces of the sides” to “the outer surface”; and in claims 8 and 9, at line 3, change “inner surfaces of the sides” to “the inner surface”.

In claims 10 and 11, at line 2, the recitation “compressed in advance and filled” is indefinite because it is unclear what is meant by “in advance”. The examiner suggests: in claims 10 and 11, at line 2, delete “in advance and filled”.

In claim 12, at line 2, the phrase “hard to compress” renders the claim indefinite because it is relative language. It is unclear what degree of hardness constitutes “hard to compress”. The examiner suggests: at line 2, delete “or hard to compress”.

In claim 12, the terms “outer surfaces of the sides” (lines 3-4) and “inner surface of the sides” (line 4) are indefinite because the cylindrical hollow bodies do not have plural “sides” with plural “surfaces”. Further, it is unclear what the relationship is between the “inner surface” and “outer surface” of claim 6 (lines 9-10) and the “inner surface” and “outer surfaces” of claim 12. The examiner suggests: in claim 12, at lines 3-4, change “outer surfaces of the sides” to “the outer surface”; and in claim 12, at line 4, change “inner surface of the sides” to “the inner surface”.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 6-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schneider (US 4,890,860). Schneider discloses a gas generator comprising: a first hollow body (see Fig. 1) with an end 14 and a side wall 12; gas generants 74 filled densely in the first hollow body 12; a second hollow body (see Fig. 1) with an end 20 and a side wall 18; igniting agents 52 and an initiator 42 housed in the second hollow body; a plug 34 closing the second hollow body; a holder 28 fixed to the side wall 12 of the first hollow body, the holder 28 holding the plug 34 and positioning the side wall 18 of the second hollow body in a center of the first hollow body (see Fig. 1); and spacers 78 inserted between the outer surface of the side wall 18 of the second hollow body and the inner surface of the side wall 12 of the first hollow body. Schneider discloses that it is desirable to reduce the empty space in the gas generator so that the size of the gas generator can be minimized (see column 4, lines 41-50). Further, Schneider discloses a volumetric loading density of 65-80% (see column 5, lines 17-25; column 6, lines 16-20), i.e., an empty space ratio of 20-35%. The gas generants 74 are granulated (see column 4, lines 51-56).

Art Unit: 3616

The generants 74 are “hard” and “pressed into wafers” (see column 5, lines 26-27), i.e., the generants are in a compressed state and are hard to compress.

Schneiter fails to teach an empty space ratio of less than 20%. Given Schneiter’s teaching that it is desirable to reduce the empty space in the gas generator so that the size of the gas generator can be minimized (see column 4, lines 41-50), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schneiter by providing the gas generator with an empty space ratio of less than 20% in order to further reduce the size of the gas generator. Further, such a modification involving a minor change in value (e.g., reducing the empty space ratio from 20% to 19%) is generally considered to be well within the level of ordinary skill in the art.

11. Claims 6, 7, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Avory et al. (US 5,648,634) in view of Nilsson et al. (US 4,734,265) and Schneiter (US 4,890,860). As shown in Fig. 13, Avory et al. discloses a gas generator comprising: a first hollow body 1010 with an end and a side wall; gas generants 305 filled densely in the first hollow body 1010; an electric ignitor having a second hollow body 160 with an end and a side wall, igniting agents 170 in the second hollow body, and a plug 100 closing the second hollow body 160; and a holder 1090 positioning the second hollow body 160 in a center of the first hollow body 1010 and fixed to the first hollow body while holding the plug 100. The gas generants 305 surround the second hollow body 160, i.e., a concavity is formed in the gas generants 305 that receives the second hollow body 160.

Avory et al. fails to teach compressing the gas generants in order to reduce the empty space ratio to less than 20%. Nilsson et al. teaches a gas generant powder 54 that is compressed within a first hollow body 10 (see column 4, lines 3-12). As described in detail above, Schneiter teaches reducing an empty space ratio to 20-35% in order to minimize the size of the gas generator. From these teachings of Nilsson et al. and Schneiter, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Avory et al. by compressing the gas generants in order to reduce the empty space ratio to 20-35% because this allows the size of the gas generator to be minimized. Additionally, given Schneiter’s teaching that it is desirable to reduce the empty space in the gas generator so that the size of the gas

Art Unit: 3616

generator can be minimized (see column 4, lines 41-50), it would have been obvious to provide the gas generator of Avory et al. with an empty space ratio of less than 20% in order to further reduce the size of the gas generator. Further, such a modification involving a minor change in value (e.g., reducing the empty space ratio from 20% to 19%) is generally considered to be well within the level of ordinary skill in the art.


Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hayashi et al. teaches a gas generator with reduced empty space. Allard et al. teaches a material for filling the empty space in a gas generator. Fink et al. teaches a gas generator with first and second hollow bodies. Ludwig et al. (Fig. 10) teaches a gas generator with a spacer.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter C. English whose telephone number is 703-308-1377. The examiner can normally be reached on Monday through Thursday (7:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul N. Dickson can be reached on 703-308-2089. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

 6/2/03
Peter C. English
Primary Examiner
Art Unit 3616

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June 2, 2003